Fermi National Accelerator Laboratory

FERMILAB-Pub-89/146-A
June 1989

THE DIRAC EQUATION IN A NON-RIEMANNIAN MANIFOLD: II AN ANALYSIS USING AN INTERNAL LOCAL N-DIMENSIONAL SPACE OF THE YANG-MILLS TYPE

Sirley Marques
NASA/Fermilab Astrophysics Center
Fermi National Accelerator Laboratory, M.S. 209
P.O. Box 500
Batavia, Illinois 60510, U.S.A.

1. The equation (1.8), page 2, should be written as: $q_{\mu\nu_i} = \frac{1}{2}\frac{icp^2}{\hbar} f_{\mu\nu}{}_{V_i}$.

2. In the group of equations (2.9), page 7, we should have for $\Lambda^{\dagger}{}_{\alpha\ b}^{\ a}$, instead:

$$\Lambda^{\dagger}{}_{\alpha\ b}^{\ a} = (\Lambda_{\alpha}{}^{a}{}_{b} - \delta^{a}_{b} C_{\alpha})\tau_0 - \delta^{a}_{b}\Gamma_{\alpha}$$

3. The equations (4.6), page 10, should be written as: $k^{\mu}_{ai} = i(p\lambda)^2 n^{\mu}_{ai}$, $\mu_i = i(p\lambda)^2 m_i$.

4. On page 11, before the first paragraph, we should have, instead: $\mid p \mid = \mid \frac{-2\hbar}{e} \mid = \ldots$

5. The equation (4.7), page 11, should be written as:

$$[k^{\mu}_{a0R}\gamma^{a}\nabla_{\mu}\psi]\tau_0 + ip\lambda[n^{\mu}_{a0}\gamma^{a}\nabla_{\mu}\psi - m_0\psi]\tau_0 + (ip\lambda)^2[n^{\mu}_{ai}\gamma^{a}\nabla_{\mu}\psi - m_i\psi]\tau_i = 0 \ .$$

6. After the equation (4.7), page 11, it should read: "Consequently, we can get $n^2 + 1$ other sets of Dirac equations when we take $n^{\mu}_{a0} = n^{\mu}_{ai} = k^{\mu}_{a0R} \sim h^{\mu}_{a}$, and $m_0 = m_i \equiv \mu_{0R}$, for each i , and where h^{μ}_{a} and μ_{0R} are taken as...."

Operated by Universities Research Association Inc. under contract with the United States Department of Energy